

What is claimed is:

1. A method of smelting copper sulfide concentrate by oxygen-smelting the copper sulfide concentrate, and removing most of Fe in the copper sulfide concentrate into slag as well as removing part or most of the S therein as SO_2 , thereby obtaining copper from copper sulfide concentrate as white metal, nearly white matte or blister copper,

the method characterized in that the oxygen-smelting is carried out to produce; slag in which a weight ratio of CaO to $(\text{SiO}_2 + \text{CaO})$ is 0.6 to 0.85 and a weight ratio of Fe to $(\text{FeO}_x + \text{SiO}_2 + \text{CaO})$ is 0.5 to 0.6 and white metal, nearly white metal matte, or blister copper, by adding SiO_2 material and CaO material to the copper sulfide concentrate as flux.

2. A method of smelting copper sulfide concentrate according to Claim 1, wherein the produced slag is slowly cooled for solidified and then subjected to pulverizing and flotation, and the recovered copper content is again subjected to the oxygen smelting process.

3. A method for smelting copper sulfide concentrate according to Claim 1, wherein the SiO_2 content of the copper sulfide concentrate is at least 1.7 % by weight with respect to the Fe to be removed into the slag.

4. A method for smelting copper sulfide concentrate according to Claim 1,

wherein the temperature of the produced slag is maintained up to 1280°C.

5. A method of smelting copper sulfide concentrate by oxygen-smelting the copper sulfide concentrate, and removing part of Fe and part of the S in the copper sulfide concentrate in slag and SO₂, and further oxygen-smelting a matte, being a mixture of obtained FeS and Cu₂S to remove Fe and S as slag and SiO₂, thereby obtaining blister copper,

the method characterized in that oxygen-smelting is carried out to produce; a slag in which a weight ratio of CaO to (SiO₂ + CaO) is 0.6 to 0.85 and a weight ratio of Fe to (FeO_x + SiO₂ + CaO) is 0.5 to 0.6, and blister copper, by adding SiO₂ material and CaO material to the matte.

6. A method for smelting copper sulfide concentrate according to Claim 5, wherein the produced slag is slowly cooled and solidified and then subjected to pulverizing and flotation, and the recovered copper content is again subjected to the matte oxygen smelting process.

7. A method of smelting copper sulfide concentrate according to Claim 5, wherein the produced slag is maintained in a molten condition and again subjected to the matte oxygen-smelting process.

8. A method of smelting copper sulfide concentrate according to Claim 5,

wherein the produced slag is cooled and solidified and then again subjected to the matte oxygen-smelting process.

9. A method of smelting copper sulfide concentrate according to Claim 5, wherein the SiO_2 content in the matte is at least 1.7 % by weight with respect to the Fe to be removed in the slag.

10. A method for smelting copper sulfide concentrate according to Claim 5, wherein the temperature of the produced slag is maintained up to 1280°C .

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